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WATER AND AIR RESOURCES COMMISSION

REGULATIONS

GOVERNING THE USE OF WATER RESOURCES

AND PUBLIC SUBAQUEOUS LANDS

STATE OF DELAWARE

ADOPTED JULY 14, 1969

WATER RESOURCES
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F O R E W O R D

AUTHORITY

The Delaware Water and Air Resources Commission establishes and adopts the following Regulations, pursuant to the authority granted by Sections 6104 and 6457 of the Delaware Water and Air Resources Act. (Delaware Code, Title 7, Part VII, Chapter 61)

STATEMENT OF POLICY

It is declared to be the policy of the State of Delaware that: (1) the development, utilization and control of the water resources and public subaqueous lands shall be directed to make the maximum contribution to the public benefit, and (2) the State, in the exercise of its sovereign power, acting through the Water and Air Resources Commission, shall control the development and use of the water resources and subaqueous lands of the State so as to effectuate full utilization, conservation, and protection of these resources.

REGULATION NO. I

DEFINITIONS AND ADMINISTRATIVE PRINCIPLES

Section 1. Definitions

The following words and phrases, when used in these Regulations, shall have the meaning ascribed to them in this Section, unless the text clearly indicates otherwise:

1.01 ABANDONED WELL: A well from which the pump has been disconnected for other than reasons of repair or replacement or one whose use has been discontinued for a period of one year.

1.02 ALLOCATION: The amount of water per unit of time which the Commission will permit an applicant to use.

1.03 ANNULAR SPACE: The space between two cylindrical objects, one of which surrounds the other, such as the space between a drillhole and a casing pipe, or between a casing pipe and a liner pipe.

1.04 AQUIFER: A water-bearing unit that transmits water. (An aquifer is unconfined (water table) or confined (artesian) according to whether the upper surface of the water is at atmospheric or greater than atmospheric pressure).

1.05 BORED WELL: A well that is excavated by means of a soil auger (hand or power) as distinguished from a well which is dug or drilled.

1.06 CASING: The pipe installed in a water well to give unobstructed access to a water-bearing unit or provide protection during or after installation. Includes the riser pipe of a buried slab-type dug or bored well.

1.07 COMMERCIAL WELL: A well which is not used to supply water to the public but one from which the public may make use of the water (gas stations, laundries, stores, etc.).

1.08 COMMISSION: The Delaware Water and Air Resources Commission.

1.09 CONSOLIDATED: A rock that is firm and rigid due to the interlocking and/or cementation of its mineral grain components. Such rocks do not normally require well screens.

1.10 CONSTRUCTION OF WELLS: All actions necessary to obtain underground water by wells.

1.11 CROSSING OR EMPLACEMENT: The laying of a pipeline or a cable to or from the mean high water marks or the stream banks.

1.12 DISINFECTION: The killing of the larger portion (but not necessarily all) of the harmful and objectionable microorganisms in, or on, a medium by means of chemicals, heat, ultraviolet light, etc.

1.13 DOMESTIC AND AGRICULTURAL USE: The use of water for ordinary household purposes, the watering of farm lands, livestock, poultry and domestic animals, home gardens and lawns. It does not include the use of water by a municipality, water company or any other organization which supplies water, for whatever purpose, to more than three families, houses or farms.

1.14 DRAWDOWN: The extent of lowering of the static water level in a well and of the water table or piezometric surface adjacent to a well, resulting from the discharge of water from a well by pumping or natural flow.

1.15 DRILLED WELL: A well that is excavated wholly or in part by means of a drill (either percussion or rotary) which operates by cutting or abrasion or by use of a water jet.

1.16 DRIVEN WELL: A well that is constructed by driving a pipe, at the end of which there is a drive point and screen, without the use of any drilling, boring or jetting device for other than an aid to driving.

1.17 DUG WELL: A well that is excavated by means of picks, shovels, or other hand tools, or by means of a power shovel or other dredging or trenching machinery, as distinguished from a well put down by a drill or auger.

1.18 ELECTRIC LOG: The record, in uncased holes, of the apparent electrical properties of the subsurface materials encountered which, when plotted in terms of depth below the ground surface, provides information regarding the quality and quantity of groundwater available.

1.19 EQUITABLE APPORTIONMENT: The allocation of water resources based on the needs of the applicant and other users, and the availability and reasonable beneficial use of the water resources.

1.20 ESTABLISHED GROUND SURFACE: The permanent elevation of the surface of the ground at the site of a well.

1.21 FILLED LANDS: Tide and submerged lands reclaimed artificially through raising such lands above the highest probable elevation of the tides to form dry lands by placement of a fill or deposit of earth, rock, sand or other solid imperishable material.

1.22 FROST PIT: A hole or depression in the ground around a casing in which pumping and other equipment subject to freezing may be placed. May be referred to as a pump pit.

1.23 GAMMA LOG: The record of the natural radiation of gamma rays, from certain radioactive elements that occur in varying amounts in subsurface materials, which is used to delineate various strata encountered in a well hole.

1.24 GENERAL SUPERVISION: The instructions usually given to employees with respect to the details of assignments. The employee is subject to periodic supervisory checks to determine compliance with definite instructions as to details of methods, work sequences and materials used on each specific project.

1.25 GRAVEL WALL WELL: A well drilled through caving formations which utilizes placed gravel for the purpose of maintaining porosity in the area surrounding the screen and casing.

1.26 GROUT OR GROUTING MATERIAL: Any stable, impervious bonding material, reasonably free of shrinkage, which is capable of providing a watertight seal between the annular spaces of a well throughout the depth required to protect against the intrusion of objectionable matter.

1.27 INDUSTRIAL WELL: A well which is used in the processing, washing, packaging, or manufacturing of a product.

1.28 IRRIGATION WELL: A well which is used for the watering of lands or crops other than household yards and gardens.

1.29 MULTIPLE SCREENING: The placing, in a single well, of more than one screen in one water-bearing unit, of screens in different or separated water-bearing units, or of a continuous screen connecting two or more water-bearing units.

1.30 NON-IRRIGATION AGRICULTURAL WELL: An agricultural well used for other than irrigation purposes, e.g., watering of livestock.

1.31 OVERBOARD DREDGING: The moving of subaqueous material from its natural setting by dredging, and the subsequent deposition of said material overboard into the same waters, thereby creating a new high area.

1.32 PERSON: Any individual, firm, association, organization, partnership, business trust, corporation, company, contractor, supplier, installer, user or owner, or any Federal, State or Local governmental agency or public district or any officer or employee thereof.

1.33 PIEZOMETRIC SURFACE: The imaginary surface or level to which water from an artesian (confined) aquifer will rise in an open hole. The elevation of the water level in a well tapping the aquifer is a measure of the elevation of the piezometric surface.

1.34 PIPE SLEEVE: A pipe cast in the cover slab of a dug or bored well to provide an entrance for pump components, or be used for venting, disinfection, or water level determination.

1.35 PITLESS ADAPTOR: A unit or assembly of parts designed for attachment to a well casing which permits transfer of water from the well and also provides access to the interior of the well casing for the installation, repair, or removal of the pumping equipment.

1.36 POTABLE WATER: Water acceptable for human consumption and conforming to applicable standards of the Delaware State Board of Health and the United States Public Health Service.

1.37 PUBLIC OR UNGRANTED SUBAQUEOUS LANDS: Those lands lying beneath the water which the State has not granted to private owners.

1.38 PUBLIC WATER SUPPLY SYSTEM: A water supply system which is used to supply water for more than three families, the public in general, employees, or in food washing, processing, or preparation in a plant or restaurant.

1.39 PUMP INSTALLATION: The procedure employed in the placement and preparation for operation of equipment and materials utilized in withdrawing or obtaining water from a well, including all construction involved in making entrance into the well and establishing such seals and safeguards as may be necessary to protect such water from contamination.

1.40 PUMP PIT: See "FROST PIT."

1.41 PUMPING WATER LEVEL: The depth to the surface of the water in a well measured from the land surface or other convenient, permanent, and specified datum, when water is discharged by pumping.

1.42 PUMPS AND PUMPING EQUIPMENT: Any equipment or materials utilized or intended for use in withdrawing or obtaining groundwater for any use, including, but not limited to, seals and tanks, together with fittings and controls.

1.43 REASONABLE BENEFICIAL USE: Any use of water which is necessary to the applicant, non-wasteful, reasonably non-damaging to other users, and in the best interest of the public.

1.44 RIPARIAN: A person owning land containing or bordering on a watercourse or other body of water in or to its banks, bed, or waters.

1.45 RISER PIPE: The casing of a driven well.

1.46 STATE: The State of Delaware.

1.47 STATIC WATER LEVEL: The depth to the surface of the water in a well measured from the land surface or other convenient, permanent, and specified datum, when no water is being discharged from the well and the water level has reached equilibrium.

1.48 STRUCTURE: Any man-made object, including but not limited to derricks, pipelines, lines for the transmission and distribution of electricity, telephone lines, wharves, piers, slips, docks, overwater summer homes or patios, warehouses and units designed to act as groins, jetties, seawalls, breakwaters, or bulkheads.

1.49 SUBAQUEOUS LANDS: See "PUBLIC OR UNGRANTED SUBAQUEOUS LANDS."

1.50 SUCTION LINE: A pipe or line connected to the inlet side of a pump or pumping equipment.

1.51 SURPLUS WATER: Those waters in excess of approved allocations and vested rights which are not needed for any conservation purposes and have not been allocated for any reasonably beneficial use.

1.52 TEST HOLE: A water well to be used in the exploration for water or the testing of water-bearing units where the expected result is to gain knowledge of the underground water resources and/or find a source of water.

1.53 VESTED RIGHTS: Reasonable beneficial uses being made of the State's water resources prior to the adoption of these Regulations.

1.54 WATERCOURSE: Any lake, river, creek, cut or other body of water or channel with established bed and banks.

1.55 WATER WELL: Any excavation that is drilled, cored, bored, washed, driven, dug, jetted, or otherwise constructed when the intended use of such excavation is for the location, testing, acquisition, or artificial recharge of underground water, and where the depth is greater than the diameter or width.

1.56 WATER WELL CONTRACTOR: Any person engaged in the business of contracting for the construction of water wells and/or installation of pumping equipment in or for wells.

1.57 WELL SEAL: An approved arrangement or device used to cap a well or to establish and maintain a junction between the casing or curbing of a well and the piping or equipment installed therein, the purpose or function of which is to prevent contaminants from entering a well at the upper terminal.

1.58 WELL VENT: An outlet at the upper terminal of a well casing to allow equalization of air pressure in a well and escape of toxic or inflammable gases.

1.59 YIELD: The quantity of water per unit of time which may flow or be pumped from a well.

Section 2. Administrative Principles

2.01 The following administrative principles shall be adhered to by the Commission in all matters involving the use of the water resources of the State:

a. The water resources of the State are considered to be public waters and public wealth and the usage of such waters shall be allocated on the bases of equitable apportionment and reasonable beneficial use. Waters which flow vagrantly over land surface shall not be regarded as public waters and the owner of land on which such waters fall or flow shall have the right to its use, provided that no damages result to other persons.

b. A right to a water allocation can only be acquired by a permit issued by the Commission or by having been a reasonable beneficial use prior to the adoption of these Regulations. No right to the use of water can be acquired by adverse use or adverse possession.

c. It is recognized by the Commission that the water resources in and on the State of Delaware may be physically and hydrologically related and that where such a relationship exists approval of uses of such waters shall take into account this relationship.

d. The rights of the public regarding the water resources of the State are considered to be usufructuary upon approval by the Commission. Prospective water users within the incorporated limits of any town, city or other applicable jurisdiction shall be required to obtain permission from said governing body for any allocation sought, as well as from the Commission, where their jurisdictions are in effect. Prospective water users not located within the confines of a governing body serving water, but desiring to obtain water from that governing body, shall likewise secure permission from both the governing body and the Commission, where their jurisdictions are in effect. The usufruct shall be in effect until such time as the Commission establishes that it is not being exercised or the use is no longer reasonably beneficial. The allocation may be altered upon request by the permittee, or by the Commission in times of a water emergency. If a water emergency is declared by the Governor, all permittees using a common supply will have their allocations decreased in accordance with the following priority schedule: (i) sustaining life, (ii) maintaining health, (iii) increasing wealth.

e. Any non-wasteful use of the surplus water resources of the State shall be considered to be a reasonable beneficial and legal use provided that sufficient and justifiable objections by riparian and other property owners are not presented to and accepted by the Commission, after public hearing, and no unreasonable damage results.

f. The decision of the Commission as to whether or not a use will be reasonably beneficial will be based in part on the results of special studies and compliance with the statewide comprehensive master water plan at such time as either or both are available and/or applicable.

g. Allocations granted by the Commission may be transferred subject to approval by the Commission, and the Public Service Commission where its jurisdiction is in effect, but until such time as a transfer is authorized, the allocated water may only be put to the use for which a permit was issued at the location specified in the permit.

h. Permits issued shall be valid for a period not to exceed one (1) year. If construction is not started by that time, the permit shall be made void unless a renewal is applied for and granted.

2.02 The following administrative principles shall be adhered to by the Commission in all matters involving the use of underwater lands:

a. Ungranted subaqueous lands lying beyond the mean high water mark in navigable waters are public lands, and all permanent or quasi-permanent uses of such lands shall be pursuant to a recommendation for approval by the Commission and subsequent approval of the Governor.

b. Any use to be made of the lands lying between the high and low water marks, which may result in damages to the water resources or have a direct effect on public lands, shall be pursuant to a recommendation for approval by the Commission and subsequent approval of the Governor.

c. The use of privately owned lands lying beneath non-navigable waters shall be subject to regulation by the Commission only insofar as such uses may adversely affect the water rights of other persons.

d. Private lands lost by the processes of Nature and acts of God become public property and permission to recover such lands rests entirely at the discretion of the Commission.

e. In evaluating applications for the use and/or recovery of subaqueous lands, consideration will be given to sound estuarine conservation practices as well as due regard for the general interest and public welfare of the State.

2.03 The Commission, in considering applications, shall take into account the geology, hydrology and hydraulics of the area of interest, population density and water use, intended use of the proposed project, character of surface and subsoils, water quality, depletion rate of the water resources, sources of contamination, and other factors as may be relevant to the protection of the water resources and public subaqueous lands.

2.04 The Commission may waive any provision of these Regulations when, in its opinion, circumstances justify such action. The failure of the Commission to enforce any of these provisions, however, shall not constitute a waiver by the Commission of any such provisions.

2.05 The conditions of these Regulations shall not be retroactive and any person making a reasonable beneficial use of the water resources or public subaqueous lands of the State who has not obtained approval for such use prior to the adoption of these Regulations shall have such use protected and regulated in the same manner as any new applicant.

2.06 If any part of these Regulations, or the application of any part thereof, is held invalid or unconstitutional, the application of such part to other persons or circumstances and the remainder of these Regulations shall not be affected thereby and shall be deemed valid and effective.

REGULATION NO. II

REQUIREMENTS FOR THE INSTALLATION AND USE OF WATER WELLS

Section 1. Scope and Applicability

1.01 Minimum requirements are hereby prescribed governing the location, design, installation, use, modification and abandonment of water wells and associated pumping equipment. No person shall conduct any such activity contrary to the provisions of this Regulation, and all such activities which are contracted for shall be carried out only by a water well contractor having a valid license pursuant to the provisions of Regulation No. III.

1.02 No permit or license is required for a person to personally install, use, repair, modify or abandon a water well and associated pumping equipment on real estate owned or leased by such person, when the well is to be used by such person or his family for ordinary domestic or agricultural purposes, and provided that the work complies with the provisions of this Regulation.

1.03 All new or replacement water wells shall receive the prior approval of the Commission. In addition, all new or replacement water wells within the shaded area of Figure 1 having a capacity of greater than 100,000 gallons per day shall receive the prior approval of the Delaware River Basin Commission, 25 Scotch Road, Trenton, New Jersey 08603. Application forms for irrigation wells in this category may be obtained from the offices of the Water and Air Resources Commission.

1.04 The Commission may, for certain wells, request that an electric or other geophysical log be made, a substantial pump test be conducted, or periodic samples be collected.

1.05 All water wells constructed for production purposes shall be put to a reasonable beneficial use. No well constructed shall be used for recharge, injection, or disposal purposes without the prior approval of the Commission.

1.06 All potential groundwater users, except where exempt by law, shall file for and receive an approved groundwater allocation before initiating the installation or use of any water well. Application may be made on the well construction application form as will be supplied by the Commission.

Section 2. General Location Requirements

2.01 Every well constructed shall be located with due consideration to the size of the lot, contour of the land, geologic structure, gradient of water table or piezometric surface, permeability of the soil and rock, local groundwater conditions, end use of the well, proximity to sources of contamination, and other factors necessary to implement the basic policies of the Commission.

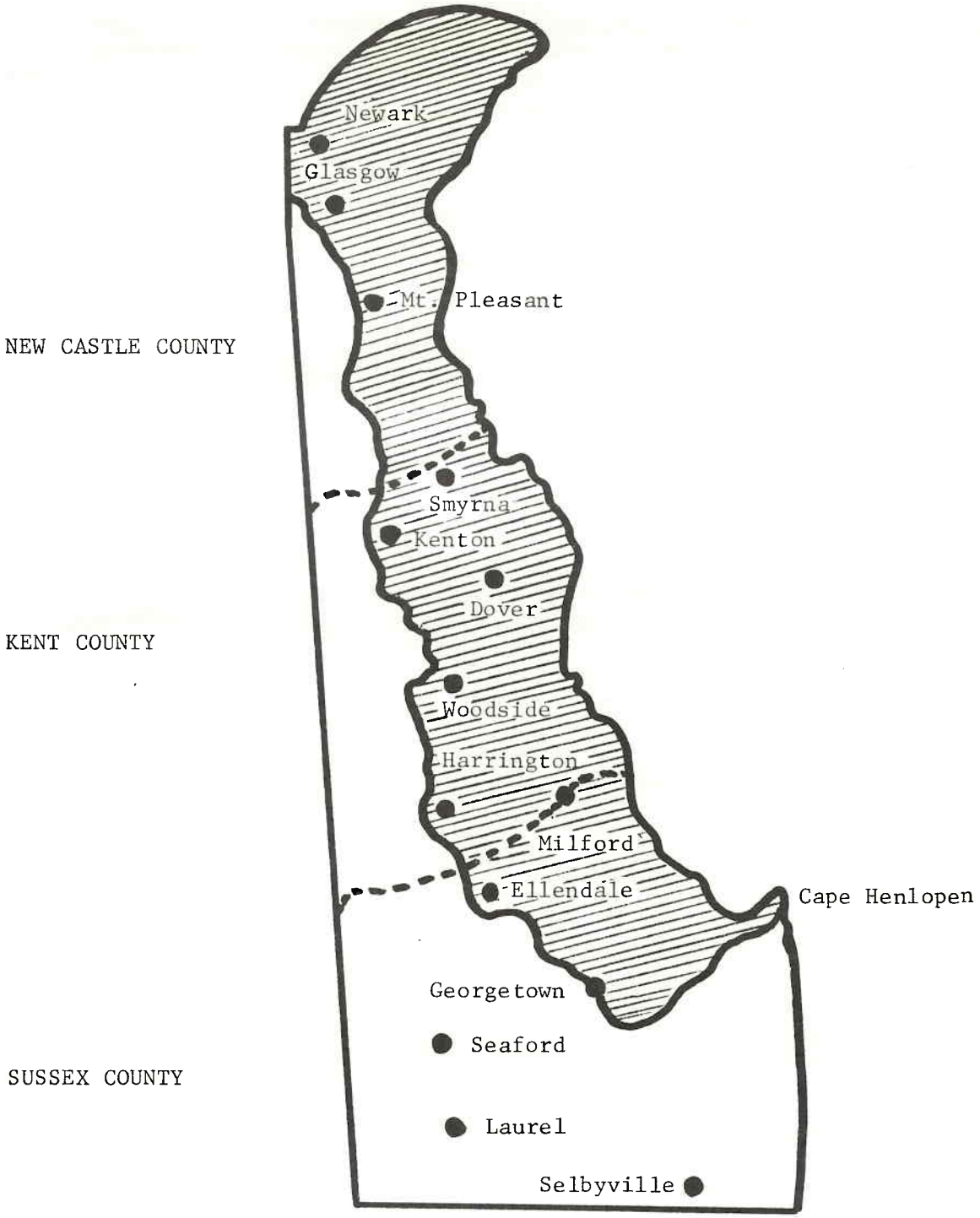

Figure 1. DELAWARE RIVER BASIN COMMISSION BOUNDARY

2.02 Where an approved public water supply system is legally and reasonably available to the area to be served, the Commission may require a connection to that system. When proposed wells are to be located within the jurisdiction or service area of a municipality serving public water the applicant must first obtain a written statement of approval from said municipality before Commission approval will be granted.

2.03 No water supply shall be located within ten (10) feet of a property line.

2.04 When a well is located adjacent to a building, it shall be so located that the center line of the well, extended vertically, will clear any projection from the building by at least five (5) feet.

2.05 Every well shall be located so as to be accessible for any attention as may be necessary.

2.06 No well shall be located within or under any building except a separate structure housing pumping equipment.

2.07 All wells shall be located at least one hundred (100) feet from any tile field, and fifty (50) feet from any septic tank, sewer or drain, except that when the sewer is constructed of cast iron pipe with watertight leaded joints, the distance of removal shall be at least ten (10) feet.

2.08 Locations subject to flooding should be avoided. If no reasonable alternate site exists, special protective construction shall be included.

Section 3. General Design Requirements

3.01 Every well shall be protected against surface wash and be surrounded by an area which can be kept in a sanitary condition.

3.02 The design and construction of a well should be so adapted to the geologic and groundwater conditions so as to utilize fully every natural sanitary protection afforded.

3.03 The installation should be designed to facilitate any supplementary construction, to obtain as much of the desired yield as the aquifer may be capable of furnishing, and to conserve the water resources.

3.04 Well diameters should be consistent with yield and pump requirements.

Section 4. General Installation Requirements

4.01 All water used in well construction shall be of potable quality unless specifically approved by the Commission.

4.02 Temporary capping of a well while the pump is not in place shall be such that no contaminants can enter the well.

4.03 The alignment of the well shall not interfere with the installation and operation of the pump.

4.04 Well screen openings shall be constructed of suitable noncorrosive material providing openings of length and size satisfactory to develop the desired yield and to restrict the entry of sand or other unconsolidated materials into the well.

4.05 The use of multiple screens shall not be permitted except by special permission of the Commission.

4.06 All wells shall be constructed so that all joints, fittings, seals and connections are watertight, no unsealed opening will be left around the well in the annular space, and water-bearing units that are or may be contaminated or are otherwise of inferior quality are sealed off insofar as practicable. Concrete wells, when installed as herein required, shall be exempt from the requirement of having watertight joints.

4.07 The permanent well casing for all but agricultural irrigation wells shall be iron or steel pipe equivalent to at least standard weight schedule 40, PVC plastic pipe equivalent to at least schedule 40 and bearing the mark of the National Sanitation Foundation (NSF), or other equivalent strength material approved by the National Sanitation Foundation. (See Section 7 of this Regulation for agricultural irrigation wells.)

4.08 Before being put into use, every well shall be tested for static water level, drawdown and yield.

4.09 Every well should be developed by pumping, surging and/or chemical treatment until the needed potential is reached and no sand or other earth materials are being discharged.

Section 5. General Requirements for the Installation of Pumping Equipment

5.01 All pumping equipment used in conjunction with water wells shall:

a. be installed so that the pump and its surroundings can be kept in a sanitary condition;

b. have a capacity consistent with the water need and the drawdown characteristics of the well;

c. be durable and reliable;

d. be constructed of material which will not create a toxic condition in the water or result in objectionable tastes or odors;

e. provide protection against the entrance of contamination; and

f. be reasonably protected against freezing.

5.02 Well casing and curbs shall terminate above the established ground surface, frost pit, or pump house floor at a height dependent upon the type of well (see Sections 6, 7 and 8 of this Regulation), except where approved pitless adaptors are installed. (The Commission shall furnish a list of approved pitless adaptors.) Such installations shall be at least twenty-four (24) inches above maximum high water level where flooding occurs. No casing shall be cut off or cut into below ground level except to install a pitless adaptor.

5.03 Pitless adaptors designed to replace a section of well casing or for attachment to the exterior of a well casing shall be constructed of materials which provide strength and durability equal to the well casing. Installation shall be by watertight threaded, welded or compression gasketed connection to the cut off casing or exterior wall of the casing.

5.04 The covers on the adaptor units shall have a downward flange which will overlap the edge of the unit. The covers shall be securely fastened to the unit and provide for the watertight entrance of electrical cables and vent piping or airline if installed.

5.05 The design and operating principles of each type of pump determines what factors must be considered in making an acceptable installation.

a. Hand Pumps - These are permissible only for domestic and agricultural purposes. The pump shall be mounted firmly to the well casing pipe or pump mounting sleeve so as to effectively seal the top of the covering or sleeve.

b. Power Driven Pumps

(1) Location Above Well - Shall be so mounted on the well casing, pipe sleeve, pump foundation or pump stand that a watertight closure is or can be made for the open end of the casing or sleeve. The pump base bolted with a neoprene or rubber gasket or equivalent seal to a foundation or plate provides an acceptable seal. If the pump unit is not located over the casing or pipe sleeve but the pump delivery or suction pipes emerge from the top of the well, a watertight expanding rubber seal or equivalent shall be installed between the well casing and piping to provide a watertight closure. The top of the well seal shall not extend below the uppermost edge of the casing or pipe sleeve.

(2) Location In Well - This type of location is permissible for submersible pumps only. When the discharge line leaves the well at the top of the casing, the opening between the discharge line and the casing or pipe sleeve shall be sealed watertight with an expanding rubber seal or equivalent device. When an underground discharge is desired, a properly installed pitless adaptor shall be used.

A check valve shall be installed in the discharge line above the pump in the well. When the discharge pipe leaves the well at the top and remains above ground, the check valve can be located beyond the well.

(3) Offset From Well - Pumps offset from the well, if not located in an aboveground pump house or other building, may be located in a basement, provided the pump and all suction pipes are elevated at least twelve (12) inches above the floor. All portions of suction pipes below the established ground surface between the well and the pump and which are not enclosed in a protective pipe shall be located the same minimum distances as are prescribed in Section 2.07 of this Regulation. When these minimum distances cannot be obtained, the suction pipe shall be enclosed in a protective pipe from the well to the pump. The protective pipe shall be sealed watertight at both ends. This requirement shall be considered satisfied if the suction pipe lies within a pressure discharge line.

5.06 A suction pipe shall be constructed of copper, galvanized steel or plastic approved by the National Sanitation Foundation (NSF) or other accredited laboratory.

5.07 The discharge line between the well casing and the pressure tank shall be under positive pressure at all times. If a check valve is installed on the water tank, the water line between the well casing and the check valve shall meet the requirements for a suction line.

5.08 In all pressure water systems, provision shall be made for collection of water samples by the installation of a faucet on the discharge side of the pressure tank.

5.09 A casing vent or breather tube is recommended when the pumping rate is such that the drawdown in the well is ten (10) feet or more and is desirable for all installations. A casing vent, when provided, shall have watertight joints terminate at least twelve (12) inches above the established ground surface, or the floor of a pump room or basement be screened and be pointing downward. A vent shall terminate at a point not less than twenty-four (24) inches above any known flood level. The end of the vent shall be screened so as to prevent the entrance of foreign objects. Vents may be offset provided they meet the provisions of this Section. If toxic or flammable gases are present, they shall be properly vented from the well and the vent shall extend to the outside atmosphere above the roof level at a point where the gases will not produce a hazard. Openings in pump bases shall be sealed watertight. If the type of gas is not known and is to be carried through the water supply, the State Board of Health shall be consulted for proper identification and treatment.

5.10 No pitcher, split base, or chain-bucket pump shall be installed on any water supply serving the public.

5.11 There shall be no cross-connection between a private water supply system and any public water system.

5.12 On wells having pump capacities of seventy (70) gallons per minute or more provision for measuring the water level in the well is desirable. Piping for this purpose shall terminate above the upper well terminal, be capped or otherwise closed, and all openings around the piping at the point of entry into the well sealed watertight.

5.13 All rooms, houses, pits or basements housing the top of the casing unit or pumping equipment shall be constructed of at least four (4) inch thick poured concrete and extend to a height of at least twelve (12) inches above the established ground surface, have all joints and entrances sealed watertight and vandalproof, be equipped with a drain or sump pump so as to assure against the flooding of pumping equipment, and have a watertight, vandalproof roof or cover sufficient to prevent the entrance of any contaminants or animals.

Section 6. Domestic, Commercial and Non-Irrigation Agricultural Wells

6.01 Prior Approval Required

a. All new domestic, commercial and non-irrigation agricultural wells, including the installation of new drive points and higher capacity replacement pumps, shall receive the prior approval of the Commission before installation shall be initiated. Water well contractors will be required to have at the well site the approval number as issued by the Commission. Applications for such approvals may be made by the property owner or any authorized representative but the Commission suggests that applications be submitted by the water well contractor. Approvals may be obtained by either of the following methods:

(1) submission of an application at least ten (10) days prior to the expected starting date, or

(2) calling the Commission staff prior to installation to secure a Conditional Permit. The procedure for doing so is detailed in Section 11 of this Regulation.

b. Repairs to existing wells do not require the prior approval of the Commission, provided that the intent of this Regulation is satisfied and the physical dimensions of the wells are not altered. Where repairs entail the emplacement of a new casing, screen, drive point, or higher capacity pump, an approval number shall be secured as explained in Section 6.01 a. of this Regulation.

6.02 Completion Reports Required

a. Water well contractors shall submit a completion report as will be supplied by the Commission for every domestic well installed within twenty-one (21) days following such installation.

b. Water well contractors installing pumping equipment shall submit a completion report as will be supplied by the Commission for every pump installed for domestic, commercial and non-irrigation agricultural purposes which has a rated capacity of twenty (20) gallons per minute or more. Such report shall be submitted within twenty-one (21) days following such installation.

6.03 Installation Requirements

a. Every new or replacement well shall be installed in conformance with the general requirements as provided for in this Regulation.

b. Every new or replacement well shall be located at least one hundred (100) feet from tile fields or seepage pits and fifty (50) feet from sources of pollution such as septic tanks, manure piles, barnyards, etc. Exceptions to this requirement may be permitted by the Commission but such situations must be made known to the Commission before installation is initiated.

c. Every well shall be adequately developed, completed and tested for static water level, drawdown and yield. The pump test should be sufficient to insure that an adequate supply of water has been obtained and that no sand or other earth materials will be discharged at the normal pumping rate.

d. All well casings, except where pitless adaptors are installed, shall be finished at least eight (8) inches above the established ground surface, frost pit or pump room floor, and at least twenty-four (24) inches above the maximum known flood level.

e. Wells which are used exclusively for domestic or non-irrigation agricultural purposes need not be grouted except as required in Sections 9 and 10 and Table 1 of this Regulation.

f. Wells which are used for commercial purposes shall be grouted as required in Sections 9 and 10 and Table 1 of this Regulation.

g. If installation is such that an annular space is created, the annular space shall be grouted in conformance with Sections 9 and 10 and Table 1 of this Regulation.

h. The grout may consist of bentonite clay or cement grout.

i. The grout may be added through the casing or grout pipe for drilled wells or be poured uniformly into the annular space for driven wells.

j. Frost or pump pits complying with the requirements of Section 5.13 of this Regulation may be used.

Section 7. Irrigation Wells

7.01 Prior Approval Required

a. All new irrigation wells shall receive the prior approval of the Commission before installation shall be initiated. Water well contractors will be required to have at the well site the approval number as issued by the Commission. Applications for such approvals may be made by the property owner or any authorized representative but the Commission suggests that applications be submitted by the water well contractor. Approvals may be obtained by submitting a Commission application form at least thirty (30) days prior to the expected starting date.

b. Repairs to existing wells do not require the prior approval of the Commission, provided that the intent of this Regulation is satisfied and the physical dimensions of the wells are not altered. Where repairs entail the emplacement of a new casing, screen or higher capacity replacement pump, an approval number shall be secured as explained in Section 7.01 a. of this Regulation.

7.02 Completion Reports Required

a. Water well contractors shall submit a completion report as will be supplied by the Commission for every irrigation well installed within twenty-one (21) days following such installation.

b. Water well contractors installing pumping equipment shall submit a completion report as will be supplied by the Commission for every pump installed for irrigation purposes. Such report shall be submitted within twenty-one (21) days following such installation.

7.03 Installation Requirements

a. Every new or replacement well shall be installed in conformance with the general requirements as provided for in this Regulation.

b. Every new or replacement well shall be located at least one hundred (100) feet from ile field and seepage pits, and fifty (50) feet from sources of pollution such as septic tanks, manure piles, barnyards, etc.

c. Every well shall be adequately developed, completed and tested for static water level, drawdown and yield. The pump test should be sufficient to insure that an adequate supply of water has been obtained and that no sand or other earth materials will be discharged at the normal pumping rate.

d. All well casings shall be finished at least twelve (12) inches above the established ground surface, frost pit or pump room floor, and at least twenty-four (24) inches above the maximum known flood level.

e. The entire annular space surrounding the outer casing, exclusive of the screened area, shall be sealed with cement grout or bentonite clay, in accordance with Sections 9 and 10 and Table 1 of this Regulation.

f. The grout should be added under pressure through the casing or grout pipe from the bottom of the space to be sealed upward in one continuous operation.

g. Frost or pump pits complying with the requirements of Section 5.13 may be used.

h. Concrete wells shall be emplaced only in the presence of a Commission representative. Applications for such wells shall state that a concrete well is to be used.

Section 8. Public and Industrial Wells

8.01 Prior Approval Required

a. All new public and industrial wells shall receive the prior approval of the Commission before installation shall be initiated. Water well contractors will be required to have at the well site the approval number as issued by the Commission. Applications for such approvals may be made by the property owner or any authorized representative but the Commission suggests that applications be submitted by the water well contractor. Approvals may be obtained by submitting a Commission application form at least thirty (30) days prior to the anticipated starting date.

b. Repairs to existing wells do not require the prior approval of the Commission, provided that the intent of this Regulation is satisfied and the physical dimensions of the well are not altered. Where repairs entail the emplacement of a new casing, screen or higher capacity replacement pump, an approval number shall be secured as explained in Section 8.01 a. of this Regulation.

8.02 Completion Reports Required

a. Water well contractors shall submit a completion report as will be supplied by the Commission for every public and industrial well installed within twenty-one (21) days following such installation.

b. Water well contractors installing pumping equipment shall submit a completion report as will be supplied by the Commission for every pump installed for public and industrial purposes. Such report shall be submitted within twenty-one (21) days following such installation.

8.03 Installation Requirements

a. Every new or replacement well shall be installed in conformance with the general requirements as provided for in this Regulation.

b. Where concrete wells are to be used for public or industrial purposes, a watertight steel casing shall be placed surrounding the concrete casing to a depth of at least thirty (30) feet, and the entire annular space around the outer casing properly grouted with cement.

c. Every new or replacement well shall be located at least one hundred fifty (150) feet from septic tanks, tile fields and seepage pits.

d. Every well shall be adequately developed, completed and tested for static water level, drawdown and yield. The pump test should be sufficient to insure that an adequate supply of water has been obtained and that no sand or other earth materials will be discharged at the normal pumping rate.

e. All well casings shall be finished at least twelve (12) inches above the established ground surface or pump room floor, and at least twenty-four (24) inches above the maximum known flood level.

f. All wells shall be double-cased to a depth satisfactory to meet the intent of this Regulation.

g. The entire annular space surrounding the outer casing, exclusive of the screened area, shall be sealed with cement grout in accordance with Sections 9 and 10 and Table 1 of this Regulation.

h. The grout shall consist of cement grout with no sand added and be applied under pressure through the casing or grout pipe from the bottom of the space to be sealed upward in one continuous operation.

i. Pumping equipment shall not be located in frost or pump pits.

Section 9. Specific Well Design and Construction

9.01 Installation of Driven Wells

a. Driven wells shall be utilized only for domestic, commercial and agricultural wells and should be at least fifteen (15) feet in depth.

b. The minimum size riser pipe shall be one and one-fourth (1¼) inches.

c. It is recommended that an outer casing at least four (4) inches in diameter be installed to a depth of at least ten (10) feet. The outer casing may be driven through sand or gravel and the material within removed by auger. In clay or other impervious material, the outer casing should be set in a hole already prepared by auger or jetting and the annular space grouted.

d. If aids to driving are used, such as an augered starting hole or water jetting, the oversized hole shall be at least four (4) inches in diameter greater than the drive pipe and the annular space around the drive pipe shall be grouted in accordance with Sections 6 and 10 of this Regulation.

e. Upon completion of the well the drive pipe shall be firmly seated in the ground and not exhibit any appreciable movement in any direction. Any opening surrounding the pipe shall be filled with bentonite clay or cement grout.

9.02 Installation of Dug Wells

a. Lining Depth - When the water-bearing unit to be used is less than twenty (20) feet below the ground surface, a watertight lining shall extend to a depth of at least two (2) feet below the lowest anticipated seasonal level of the water table, provided that the minimum depth of liner shall be ten (10) feet. When the water-bearing unit to be used is more than twenty (20) feet below the ground surface, the watertight lining shall extend to a depth of at least twenty (20) feet. When more than one water-bearing unit is available within forty (40) feet of the ground surface, the lower unit shall be used where practicable. The annular space around the watertight portion of the lining through clay, hardpan, shale, or similar material shall be filled with clay slurry or other impervious grout material.

b. Lining Construction - If the lining is of concrete materials, it shall, if possible, be poured in one operation and shall have a minimum thickness of six (6) inches. There shall be no construction joint within ten (10) feet of the surface. The cover shall be made of substantial reinforced watertight concrete or equivalent of sufficient diameter to overlap the wall by at least two (2) inches. The cover shall be free from joints.

c. Installations on Well - A manhole, if installed, shall be provided with a curb, the top of which extends six (6) inches above the slab, and be equipped with a locked or bolted overlapping cover, the sides of which extend downward at least four (4) inches. No pumping equipment or appurtenances requiring access to the interior of the well for maintenance or repair operations shall be installed in the well.

d. The lining of a buried slab dug well shall comply with the requirements of Section 9.02 a., b., and c. of this Regulation. The buried slab shall be constructed of concrete and be free of joints. A watertight connection between the lining and the concrete slab shall be provided. A metal casing of material complying with the applicable requirements of Sections 9.02 a., b., and c. of this Regulation shall be connected watertight with the concrete slab and terminate above the established ground surface. Backfill shall be thoroughly tamped to minimize settling.

9.03 Installation of Bored Wells

a. Bored wells shall be constructed with a watertight casing of six (6) inches diameter or larger to a depth as set forth in Table 1.

b. The requirements of Section 9.02 shall also apply.

9.04 Installation of Flowing Wells

The annular space between the soil or rock and the well casing shall be tightly sealed with cement grout or sodium-based bentonite clay from within five (5) feet of the top of the aquifer to the ground surface. The method of construction shall be such that during the placing of the grout and the time required for it to set, no water flow shall occur through or around the

annular space creating a pressure sufficient to disturb the grout prior to final set. After the grout has set, drilling operations shall then be continued into the artesian stratum or strata. Flow control from the well shall be provided consisting of valved pipe connections, water-tight pump connections, or receiving reservoirs. Such reservoirs must be set at an altitude corresponding to that of the artesian head. There shall be no direct connection between the discharge pipe and a sewer or other source of pollution. If an unsuspected artesian stratum is found before the required grouting can be applied, a packer or other acceptable seal shall be set immediately above the artesian aquifer to shut off the water to be followed immediately by grouting of the annular space as required as above, and then the well drilled into and completed as for a well where the depth to an artesian stratum or strata is known. If the artesian well cannot be completed as required by these Regulations, it must be sealed and abandoned.

9.05 Installation of Drilled Wells

a. Where rock is encountered at a depth greater than twenty (20) feet from the surface, the casing shall be equipped with a drive shoe which shall be driven firmly into stable rock to provide a tight joint that will prevent pollution or sand from entering the well. A drive shoe is not required on a casing installed without driving and which is to be grouted in an oversized hole. Where rock is encountered within twenty (20) feet of the surface, an oversized hole shall be drilled and the casing sealed with cement grout for a minimum depth of twenty (20) feet.

b. Shall otherwise conform with the requirements of Section 10 and Table 1 of this Regulation.

Section 10. Grouting Requirements

10.01 All wells shall be sealed one (1) foot above and below any water-bearing unit known or suspected to be contaminated or of otherwise inferior quality.

10.02 The grout may consist of a sodium based bentonitic clay, montmorillonite, or a cement grout in the proportions of one bag of cement (ninety-four (94) pounds), up to an equal volume of dry sand, and up to eight (8) gallons of potable water. Additives up to five (5) percent by weight may be used to increase fluidity.

10.03 Any annular spaces not required to be grouted may be filled with bentonitic clay, cement grout, or drilling mud.

10.04 The upper section of wells to be grouted shall have the grout extend above the established ground surface, except where pitless adaptors are used the grout shall not extend above the point of attachment to the well casing.

10.05 Before drilling resumes, cement grout shall set a minimum of twelve (12) hours when hi-early cement is used and twenty-four (24) hours when regular cement is used.

TABLE 1

DRILLED WATER WELL CONSTRUCTION STANDARDS

Water-bearing Unit Characteristics	Hydrologic Conditions	Overburden	Minimum Well Diameter	Minimum Casing Depth	Minimum Oversize Drill Hole For Grout		Construction Requirements
					Diameter	Depth	
Sand or gravel, unconsolidated; sandstone or conglomerate, semi-consolidated or consolidated	Water table	Unconsolidated	2"	20' and at least 5' below pumping level	Casing size plus 3"	20'	After casing is in place the annular space between it and the well hole shall be filled with bentonitic clay or cement grout as and when required.
	Artesian	Semi-consolidated or consolidated		To top of water-bearing unit and at least 5' below pumping level	Casing size plus 4"	To base of confining layer immediately above the water-bearing unit used but not less than 20'	
Weathered crystalline rock or crystalline rock other than carbonate	Any	Unconsolidated, semi-consolidated, consolidated, weathered or sedimentary rock; semi-consolidated, consolidated or fractured rubble	4"	20'	Casing size plus 4"	20'	Casing shall be firmly seated on top of rock or at base of weathered zone. Cement grout should extend from the surface down to a minimum depth of 20'.
Carbonate rock	Any	Any	6"	40' except by special permission	Casing size plus 4"	40'	Same as above; to minimum depth of 40'.

10.06 Sealing of wells shall be accomplished in accordance with the applicable Sections of this Regulation and Table 1.

10.07 A minimum of four (4) inches of sand or gravel should separate the grout from any gravel surrounding the well screen.

Section 11. Procedure for Obtaining a Conditional Permit

11.01 The Commission is aware that certain emergencies develop which do not permit adequate time for the submission of an application and subsequent approval. In view of this, the following projects, when justified, will be temporarily approved by means of a Conditional Permit:

a. wells to be used for construction purposes, drilling fluids or temporary de-watering; and

b. new or reworked wells that will alleviate a temporary emergency due to the failure of the present system.

c. other cases considered to be justifiable.

11.02 A Conditional Permit, when justified, will be issued when the Commission is notified by phone as to the details of the emergency being faced. Such notice shall state the name of the owner experiencing a problem, the well location, nature of the problem, and the means by which the problem is to be alleviated. In the event that such work becomes necessary on a holiday or weekend, the Commission is to be notified on the first working day following such action. Upon notification the Commission staff may stipulate the manner in which the above projects shall be conducted.

11.03 A Conditional Permit Number may be issued verbally or by letter, but must be known by the contractor on the site. The Conditional Permit must be secured by the water well contractor within seventy-two (72) hours after receiving verbal approval.

11.04 A Conditional Permit, when issued, shall state the conditions of approval and shall be valid for a period not to exceed fourteen (14) days from the date of issuance. During this time, and if the applicant proposes to use the well beyond this time, formal application must be made. The use of the well beyond the expiration date of the Conditional Permit shall be a violation of this Regulation unless a Certificate of Approval has been secured authorizing the permanent use of said well.

11.05 In the event that the Commission is unable to take action on an application before the expiration date of the Conditional Permit, an extension will be granted, provided that the applicant has complied with the provisions herein set forth.

11.06 It is important to note that the issuance of a Conditional Permit does not guarantee that a Certificate of Approval will be issued. If on the bases of the application and completion report the Commission denies approval, a Certificate of Approval will not be issued. Furthermore, the Commission may restrict the continued full excerise of the Conditional Permit.

11.07 The intent of this Section is to avoid unnecessary delays when an emergency exists, and it shall be applied by the Commission provided that proper notification is made, the privilege is not abused, and the proper forms are submitted in the established manner.

Section 12. Disinfection and Sample Requirements

12.01 Every new or replacement well or pump installation shall be thoroughly pumped to waste until the water is as clear as is reasonably possible dependent upon groundwater conditions in the area. Thereafter the well and pumping equipment shall be disinfected with chlorine so applied that a concentration of at least fifty (50) milligrams per liter (mg/l) shall be obtained in all parts of the well. This may be accomplished by either of the following methods:

a. Mix one ounce of calcium hypochlorite containing approximately seventy (70) percent available chlorine with a small amount of water sufficient to form a paste free of lumps. (This chemical can be purchased in granular form at some hardware stores, swimming pool supply outlets, or chemical supply houses.) Add enough water to make two (2) quarts. Stir this stock solution thoroughly for ten (10) to fifteen (15) minutes prior to allowing the inert ingredients to settle. The clearer solution should be used and the inert material discarded. Each two (2) quarts of this stock solution is sufficient to disinfect one hundred (100) gallons of water standing in the well. The solution should be prepared in clean crockery, glass or rubber-lined containers. Two (2) heaping tablespoons of granular HTH is equivalent to one (1) ounce. Chlorinated lime (approximately twelve (12) to fifteen (15) percent available chlorine) may be used in preparing the solution if a proportionately greater amount is used, i.e., five (5) to six (6) ounces per two (2) quarts.

b. Sodium hypochlorite, which is commonly available as a liquid household bleach containing 5.25 percent available chlorine may be used at the rate of one (1) quart to one hundred fifty (150) gallons of water standing in the well.

c. The disinfectant added shall be sufficient to maintain two (2) mg/l of chlorine residual after two (2) hours contact time.

Table 2 may be used in calculating amounts of disinfectant to be added to various size wells.

12.02 Diffusion of the chemical disinfectant within the well may be obtained by running the solution into the well through a water hose or pipeline. A minimum contact period of twelve (12) hours shall be provided before pumping the well to waste and flushing the chlorine solution from the distribution system. A well drilling contractor or pump installer shall be responsible for chlorinating the work he performs on the well, pump or pumping equipment.

12.03 After the well has been pumped to remove all disinfectant, one or more water samples from the installation may be collected by the Commission and/or State Board of Health.

TABLE 2

QUANTITIES OF DISINFECTANT REQUIRED

Diameter of Well in Inches	Depth of Well in Feet								
	Less Than 50	100	150	200	250	300	350	400	500
		Quarts of Calcium Hypochlorite Stock (Quarts of Laundry Bleach)							
1¼	¼ (¼)	¼ (¼)	¼ (¼)	½ (¼)	½ (¼)	– –	– –	– –	– –
2	¼ (¼)	½ (¼)	½ (¼)	1 (¼)	1 (½)	1 (½)	1¼ (½)	1½ (½)	2 1
4	1 (¼)	1½ (½)	2 (1)	3 (1)	3½ (1¼)	4 (1½)	5 (2)	5¼ (2)	7 (2¼)
5	1¼ (½)	2¼ (1)	3¼ (1¼)	4¼ (1½)	5¼ (2)	6¼ (2¼)	7¼ (2½)	8¼ (3)	10½ (3½)
6	1½ (½)	3 (1)	4½ (1½)	6 (2)	7½ (2½)	9 (3)	10½ (3½)	12 (4)	15 (5)
		Gallons of Calcium Hypochlorite Stock (Gallons of Laundry Bleach)							
8	1 (¼)	1½ (½)	2 (1)	3 (1)	3½ (1¼)	4 (1½)	5 (2)	6 (2)	7 (2¼)
12	1½ (½)	3 (1)	4½ (1½)	6 (2)	8 (2½)	9 (3)	11 (3½)	12 (4)	15 (5)
18	3½ (1¼)	7 (2¼)	10 (3½)	14 (4½)	17 (6)	20 (7)	24 (8)	– –	– –
24	6 (2)	12 (4)	18 (6)	24 (8)	– –	– –	– –	– –	– –
30	10 (3¼)	19 (7)	28 (10)	– –	– –	– –	– –	– –	– –

Section 13. Abandonment of Wells

13.01 When any well is temporarily removed from service, the top of the well shall be sealed with a watertight cap or seal.

13.02 Any well to be permanently abandoned shall be brought to the attention of the Commission and filled and sealed with clean puddled clay or concrete. The Commission may specify special techniques under unusual circumstances.

Section 14. Reports and Prior Notifications Required

14.01 A completion report as will be supplied by the Commission shall be filed by water well contractors for any permanent, temporary or test well constructed, modified or abandoned, as well as for any pumping equipment installed or modified. Such report is due within twenty-one (21) days following completion of the work and shall be filled in for that portion of the work done by the individual contractor.

14.02 Water users with facilities having capacities greater than 50,000 gallons per day may be required to file monthly reports on forms provided by the Commission.

14.03 The Commission shall be notified before initiating the following:

a. removing from service for more than six (6) months any water supply facility with a capacity of greater than 50,000 gallons per day (If within one (1) year after discontinuing such service the facility is returned to service, notification is likewise required. Initiating service after this period will require Commission approval pursuant to the provisions of this Regulation.);

b. any temporary change (less than thirty (30) days) in the pumping capacity or withdrawal rates of any water facility (Changes for longer periods of time shall require Commission approval pursuant to the provisions of this Regulation. Temporary changes which are deemed by the Commission staff to result in an undue infringement on the rights of other persons may result in a formal application being required.); and

c. the drilling of any test hole.

REGULATION NO. III

LICENSING AND RESPONSIBILITIES OF WATER WELL CONTRACTORS

Section 1. Scope and Applicability

1.01 The Commission shall appoint, with the power of removal, a Water Well Contractors Advisory Board which shall number at least five (5). One member shall be a member of the Commission, serve at the pleasure of the Commission, and be Chairman of the Board. One member shall be a member of the Commission staff, serve at the pleasure of the Commission, and be Secretary of the Board. One member shall be a member of the State Geologist's Office and serve at the pleasure of the Commission. Initially, two (2) water well contractors making residence in Delaware and having substantial knowledge of water well construction shall be arbitrarily appointed by the Commission. One shall serve a term of one (1) year and the other two (2) years. Thereafter, each appointee to these positions shall be a licensed water well contractor and shall serve two (2) year terms.

1.02 The Board shall meet on the call of the Chairman within thirty (30) days after the members are appointed and thereafter shall hold at least one meeting each year. A special meeting of the Board shall be called by the Chairman whenever the necessity for such a meeting exists, or whenever required under Section 1.03 hereof.

1.03 It shall be the duty of the Board to:

a. propose examinations to be administered to applicants for licenses to test competency in constructing water wells and knowledge of Commission regulations pertaining to water wells;

b. administer and evaluate such examinations;

c. recommend to the Commission the granting or denial of licenses to applicants;

d. recommend to the Commission fees for examinations and license renewals;

e. evaluate apparent violations and recommend to the Commission any disciplinary actions deemed necessary; and

f. consult and meet with the Water Resources Committee of the Commission to discuss and evaluate water resource problems whenever the need for such a meeting exists.

1.04 Pursuant to this Regulation, all work contracted for on any well shall be performed only under the general supervision of a licensed water well contractor.

1.05 Applicants for licenses to engage in the business of water well contracting shall file application forms as will be provided by the Commission, accompanied by the application fee as will be established by the Commission, and will be required to successfully complete any examination given by the Commission before being issued said license.

1.06 Licenses issued pursuant to this Regulation are not transferable and shall expire on June 30th of each year. A license may be renewed without examination for an ensuing year by making application before thirty (30) days of the expiration date and paying the applicable renewal fee.

1.07 Any person whose application for a license has been denied shall be notified in writing as to the reasons for denial and such person may, within twenty (20) days after notification, file a written request with the Commission for a hearing.

Section 2. Responsibilities of Licensed Water Well Contractors

2.01 Pursuant to these Regulations, licensed water well contractors shall be responsible for the following:

a. initiating work only on wells for which the proper approval has been granted and/or the Commission has been properly notified;

b. compliance with all applicable regulations and requirements;

c. the conduct of work carried out by himself and any employee; and

d. the proper submission of completion reports for all work done, signed by the licensed water well contractor.

Section 3. Violations and Hearings

3.01 Whenever the Commission finds that the licensee under this Regulation is or has engaged in practices which are in violation of any provision of these Regulations, the Commission may give written notice to the licensee describing the alleged violation and stating that an opportunity for hearing will be provided to the licensee to show cause why his license should not be suspended or revoked. If a written request for such hearing is filed with the Commission within twenty (20) days of receipt of the notice, such hearing shall be held in accordance with established procedures. At the conclusion of the hearing, or if no hearing is requested, the license may be affirmed, suspended or revoked.

3.02 If suspended, the period of suspension shall be not more than one (1) year.

3.03 If revoked, as in cases of willful or serious violation, no application for a new license shall be approved for a period of one (1) year after the date of revocation.

REGULATION NO. IV

REQUIREMENTS FOR THE USE OF PUBLIC SUBAQUEOUS LANDS

Section 1. Scope and Applicability

1.01 The Commission and the Governor have exclusive jurisdiction, pursuant to the provisions of Chapter 64, Subchapter II, Title 7, Delaware Code as amended, to convey a fee simple or lesser interest and to lease or grant permits or easements over all public subaqueous lands of the State.

1.02 This jurisdiction includes all ungranted subaqueous lands in non-navigable waters, and all ungranted tide and submerged lands in navigable and non-navigable waters, whether within or beyond the boundaries of the State, heretofore and hereafter acquired by the State by any legal means.

1.03 All jurisdiction and authority to convey a fee simple or lesser interest, to lease or to grant permits, concessions, alterations or requests of any nature to dredge, fill, occupy, lease, purchase or otherwise alter or use public subaqueous lands, to erect any structure as defined herein on land abutting, in, on, under, or over public subaqueous lands, or otherwise alter shore lines in any way, is vested in the Commission and the Governor.

1.04 No use of public subaqueous lands or beach or shore to the mean high water level shall be undertaken except pursuant to a recommendation for approval by the Commission and subsequent approval by the Governor.

1.05 Those activities involving the use of private subaqueous lands may be subject to formal Commission review and consideration insofar as such activities may contribute to the pollution of public waters, infringe upon the water rights of other private owners, or make connection with public subaqueous lands.

1.06 Those private lands lost by the processes of Nature and acts of God, being covered by water, become the lands of the State and permission to recover such lands rests entirely at the discretion of the State.

1.07 The Commission, in evaluating all applications for the use and/or recovery of subaqueous lands, shall do so in light of its overall policy and its recognition of sound estuarine conservation practices, as well as a due regard for the general interest and welfare of the people of the State.

1.08 All projects requiring approval pursuant to the provisions of Section 2 of this Regulation shall be subject to review by the appropriate State and Federal agencies having jurisdiction or interest in matters pertaining to water pollution, public health, fish and wildlife, planning, geology, or navigation. Conditions imposed upon the applicant in the approval certificate shall reflect the comments of such agencies, provided that such comments do not constitute reason for public hearing and subsequent denial of approval.

1.09 All charges to the applicant may be ascertained from a separate publication of the Commission setting forth the application, rental and purchase fees for all water resources and subaqueous lands projects.

1.10 Contractors for subaqueous lands projects shall carry sufficient liability, as determined by the Commission, to insure against any loss or damages associated with such activities.

Section 2. Procedure for Obtaining Approval to Use Public Subaqueous Lands

2.01 The following projects involving the use of public subaqueous lands shall receive approval before being commenced:

a. the erection of any structure on such lands;

b. the dredging or filling of such lands;

c. the excavation of any channel, lagoon, turning basin, or ditch on public or private lands which will make connection with public subaqueous lands;

d. the filling in of lands adjacent to public subaqueous lands; and

e. the laying of any pipeline, line for the transmission of electricity, or telephone line in, on, over or under the beds of public subaqueous lands.

2.02 Any person desiring to do the above or otherwise alter present areas in, on, under, over, or adjacent to State controlled subaqueous lands shall, before starting any action whatsoever, submit to the Commission a written application concerning his intention, supported by a general report and description of the proposed project, prepared or approved by a professional engineer or other properly qualified person, as provided in the Delaware Professional Engineers and Land Surveyors Registration Act, approved 19 April 1941. No person shall commence any such work unless and until approval and the proper lease, permit, deed, or other legal document has been issued.

2.03 Said application shall be submitted on proper Commission forms and should be submitted at least sixty (60) days prior to the desired approval date to allow for site inspection, plan review, verification of details, adequate Commission consideration, advertising of projects, holding of hearings, if required, and other matters related to the project.

2.04 Approval is not required for the reconstruction of existing subaqueous lands structures to the extent that the dimensions or intended use are not changed. Changes in either the size or use shall require approval pursuant to Section 2.01 of this Regulation.

2.05 Upon satisfactory compliance with the provisions of Regulation No. IV the Commission shall recommend to the Governor that a lease or permit be granted. Approvals granted shall state conditions upon which the application was approved, the expiration date of the approval, and the charges, if any, assessed to the applicant.

Section 3. Installation and Use of Convenience Structures

3.01 Riparians may, upon receiving Commission approval, obtain access to navigable waters by the installation and use of structures such as derricks, wharves, docks, piers, slips, launching ramps, overwater buildings and marinas. Such facilities making use of public subaqueous lands shall be subject to fees as established by the Commission, on a per square foot basis.

3.02 Such structures shall be constructed of materials sufficient to withstand the stresses to which they will be subjected and be installed and used in a manner which will provide maximum protection against contributing to water pollution, causing harm to fish or wildlife, interference with navigation, or interference with public or other riparian rights.

Section 4. Installation and Use of Protective and Necessity Structures

4.01 The installation and use by any person of structures such as groins, jetties, seawalls, bulkheads, breakwaters, dams, or bridges shall be subject to review and approval by the Commission. Such projects shall be subject only to application fees except in the case of State agencies making applications, where no fees will be charged.

4.02 Such projects are to be conducted in a manner consistent with the purpose for which they were meant and shall have a minimum detrimental effect on water pollution, navigation, fish and wildlife, and public and riparian rights. Construction materials are to reflect the forces which they will be subjected to and be oriented to offer the protection being sought.

4.03 Due consideration on each applicaton will be given by the Commission to sand transport, erosion rate, accretion rate, aesthetic appeal and injurious effect on other property owners.

4.04 Such projects shall be carried out only for the purposes of protection or necessity. Any actions which are construed by the Commission as being attempts to gain property, shall be regulated by the provisions of Section 5 of this Regulation.

Section 5. Projects Involving Dredging, Filling or Excavations

5.01 The filling in or removal of any public subaqueous lands shall be considered an act of ownership and be subject to the provisions of Sections 5.06 and 5.07 of this Regulation.

5.02 Maintenance dredging of navigation channels shall be pursuant to Commission approval with the spoils being deposited in an area and manner as stipulated by the Commission.

5.03 Dredging and/or filling or expanding present areas available to the general public shall be reviewed by the proper state agencies and processed through the Commission. If such projects provide general public benefits and are administered by public agencies there shall be no fee, other than application, provided the dredged material is deposited in a manner and area designated by the Commission.

5.04 Where private lands are dredged or excavated and make connection with navigable waters, the subaqueous lands thus created become public property and subject to the same administration and control as the adjacent subaqueous lands. Application for such projects shall be reviewed by the Commission with due regard for possible salt water contamination of groundwater supplies.

5.05 Riparians may further their right of access to navigable waters by dredging or excavating. Neither the public generally nor riparians may dredge subaqueous materials where such acts are acts of ownership and attempts to improve or alter private facilities. All dredging, and all excavations making connection with navigable waters, where the intent is to obtain access, shall be pursuant to Commission approval. The riparian right of access is paramount to other rights but must be conducted in a manner sufficient to prevent wanton and needless destruction of aquatic life, interference with public and State rights, or interference with other riparians.

5.06 The removal of public subaqueous lands for the purpose of ownership shall be pursuant to Commission approval and contingent upon receipt by the Commission of payment for the estimated material to be removed, on a cubic yard basis. The Commission reserves the right to determine the amount of material actually involved in dredging and/or filling. Failure to make payment, due within thirty (30) days after receipt of charge by the applicant, shall constitute a violation of Regulations and result in the permit being voided.

5.07 Pursuant to Section 5.01 of this Regulation, filling, reclamation or alteration projects shall receive Commission approval and be contingent upon receipt by the Commission of payment for the estimated area of land created. In addition, the land created remains State property and shall be leased to the applicant on the basis of square feet of newly created land for the first ten (10) year period. At the end of the first ten (10) year term, the property shall be rented based on the then assessed value of the property, with said payments continuing so long as the ownership of the created lands remains under State control and ownership. Fees are to be paid within thirty (30) days of billing. Failure to do so will result in the application being denied approval, and failure to make payment by the assigned date shall constitute reason for the lease being voided.

5.08 The Commission may at its discretion convey a fee simple title or any other interest in lands created by filling in lieu of leasing said lands pursuant to the provisions of Section 5.07 of this Regulation. The sale price shall be determined by the Commission on the basis of a before and after appraised value, said appraisal to be made and certified by a licensed appraiser, as agreed upon by the applicant and the Commission, the costs for which shall be paid by the applicant.

5.09 The Commission reserves the right to adjust any charges as individual circumstances may require.

5.10 There shall be no filling or dredging, other than maintenance dredging, in shellfish areas.

Section 6. Water Quality Control on Dredging Projects

6.01 All dredging and filling is to be conducted in a manner consistent with sound conservation and water pollution control practices. Spoils and fill areas are to be properly diked so as to contain the dredged material and prevent its entrance into any surface water. Specific requirements for spoils retention may be stipulated by the Commission in the approval certificate.

6.02 Overboard dredging will be permitted only by special approval of the Commission.

6.03 All material excavated shall be transported, deposited, confined, and graded to drain within disposal areas approved by the Commission. Any material that is deposited elsewhere than in approved areas shall be removed by the lessee and deposited where directed at his expense.

6.04 Material excavated by hydraulic dredges shall be transported by pipeline directly to the approved disposal area or scow or other vessel. All pipelines shall be kept in good condition at all times, and any leaks or breaks shall be promptly and properly repaired.

6.05 Materials excavated by bucket (bucket, drag or dipper) dredging and not deposited directly into an approved disposal area shall be placed in scows or other vessels and transported to either an approved enclosed basin, dumped and then rehandled by hydraulic dredge to an approved disposal area, or to a mooring where scows or other vessels shall be unloaded by pumping directly to an approved disposal area.

6.06 Underwater rehandling shall be performed in enclosed basins having only one entrance channel with a maximum width of three hundred (300) feet. Material dumped in the rehandling basin shall be removed daily by the rehandling dredge.

6.07 When scows or other vessels are unloaded without dumping, they shall have their contents pumped directly into the approved disposal area by a means sufficient to preclude any loss of material to the body of water.

6.08 The lessee and/or contractor will be permitted, in the approved disposal areas, to construct any temporary structures or use any means necessary to control the dredge effluent, except that borrow from the outer slopes of existing embankments and/or hydraulic placing of perimeter embankments will not be permitted. A minimum freeboard of two (2) feet, measured vertically between the retained materials and water and the top of the adjacent confining embankment, shall be maintained at all times.

6.09 Development of disposal areas shall be done so as to prevent obstruction of drainage on existing marshland or upland areas adjacent thereto, and to leave free, clear and unobstructed outfalls of sewers, drainage ditches, and other similar structures affected by the diposal operations. The dredged materials shall be distributed within the disposal area in a reasonably uniform manner so as to permit full drainage without ponding of the fill surface during and after fill operations.

6.10 The lessee and/or contractor will be required to raise the elevation of the crest of the waste weir or to stop discharging material into the disposal area and permit the fill to settle whenever the density of suspended solids in the effluent is greater than a predetermined density in excess of the surface water in question. Effluent samples shall be taken at the discharge point and surface water samples taken at one-third (1/3) and two-thirds (2/3) the water depth at locations removed from the discharge points by no more than twenty-five (25) feet. Samples for density determination shall be taken and recorded at least twice daily by the lessee and/or contractor. Commission representatives may inspect the wrok at any reasonable time and make any confirming analyses deemed necessary.

6.11 When settled solids are not present in the sample, field analyses for solids density may be made by either the hydrometer method or the weight-volume method. When settled solids are present the weight-volume method shall be used.

a. An instrument similar to the Squib #3512 shall be used in the hydrometer method.

b. When the weight-volume method is used the total sample shall be measured to obtain the volume in liters and weight in grams. Measurements shall be made with a 1,000 cubic centimeter laboratory cylinder and a scale or balance capable of weighing cylinder and sample to the nearest gram. The unit weight shall then be obtained by dividing the total weight in grams by the total volume in liters.

Section 7. Installation and Use of Pipelines and Other Conduits

7.01 The installation and use of pipelines and other conduits shall be subject to application and rental fees established by the Commission for the following categorical breakdown by pollution and hazard potential:

a. telephone lines, lines for the transmission of electricity, and pipelines for the transport of liquid wastes having a chloride content greater than 2,500 mg/l which cannot be classified in any of the following categories;

b. pipelines for the transport of hydrocarbon and non-hydrocarbon gases;

c. pipelines for the transport of fluid hydrocarbons and fluid non-hydrocarbons which cannot be classified as being fresh water, salt water, or domestic waste water; and

d. pipelines for the transport of any other fluid having a chloride content of less than 2,500 mg/l containing no toxic substances, and having a carbonaceous oxygen demand less than a value considered suitable by the Commission for the body of water in question.

7.02 The construction and materials for such projects shall be in accordance with the applicable regulations or requirements of any other state or federal agency having jurisdiction, as well as the recommended applicable procedures of the American Society of Testing Materials.